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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/829,632	04/22/2004	Corey Ladas	MS#307882.01 (5113)	7301

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EXAMINER	
FUREMAN, JARED	

ART UNIT	PAPER NUMBER
2876	

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/829,632	LADAS ET AL.	
	Examiner	Art Unit	
	Jared J. Fureman	2876	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,9-30 and 35-40* is/are rejected.

7)☒ Claim(s) *5-8 and 31-34* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *04/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Receipt is acknowledged of the IDS, filed on 4/22/2004, which has been entered in the file. Claims 1-40 are pending.

Claim Rejections - 35 USC § 102

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 9-30 and 35-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Pettersson et al (US 2003/0066896 A1).

Pettersson et al teaches:

1. A method (see paragraphs 1, 2, 13, 29, 30 and 66-77) of encoding data in a pattern (coding pattern 4, figure 1 and paragraph 48) of symbols (dots) on a surface (base 1, figure 1 and paragraph 48), said method comprising:

dividing an ordered sequence of digits (data representing position information, for example) representative of the encoded data into a plurality of sequential windows (cells 40, figure 4), wherein each of the sequential windows includes a partial sequence of the ordered sequence of digits (each of the cells 40 includes a portion of the total position information, for example);

transforming the partial sequence included in each sequential window into a

series of digits (digits representing the position information, for example); and

arranging a symbol within a plurality of surface windows (cells 40, figure 4) on the surface, wherein each surface window corresponds to one of the sequential windows (see figure 4), wherein a position of the symbol within each surface window is based on one of the transformed series of digits (the position of the dots within the cells 40 represent the position information), and wherein the position of the symbol within the surface window is indicative of the encoded data (the particular position of the dots within each cell 40 represent the position information of that particular cell).

2. The method of claim 1, wherein the encoded data indicates a unique position on the surface so that the position of the symbol within each surface window indicates the unique position on the surface (the position in formation encoded by the dots of each cell 40 represent the unique position of that cell on the base 1).

3. The method of claim 1, wherein said dividing the ordered sequence of digits comprises dividing the ordered sequence of digits into a plurality of non-overlapping and equally sized sequential windows (the cells 40 are non-overlapping and equally sized, see figure 40 and paragraph 53).

4. The method of claim 1, wherein the ordered sequence of digits is an ordered sequence of binary digits, and wherein said transforming the partial sequence into the series of digits comprises:

representing the partial sequence included in each sequential window as a decimal digit (the position information for each cell 40 is necessarily represented as a decimal digit in the coding device, when the coding device is a digital electronic device, see paragraphs 35 and 36, for example),

applying a mathematical function (an algorithm, figure 8 and paragraph 67) to the decimal digit,

transforming the decimal digit that has been applied with the mathematical function into a binary representation (a binary representation is necessarily used when the coding device is a digital device), and

wherein the binary representation indicates the series of digits.

9. The method of claim 1, further comprising arranging the ordered sequence of digits as a function of a geometric shape of the surface, and wherein said dividing the ordered sequence of digits comprises dividing the ordered sequence of digits into the plurality of sequential windows based on the geometric shape of the surface (the cells 40 are necessarily arranged as a function of the shape of the surface, since the cells 40 indicate a particular position on the surface, thus the cells 40 are arranged as a function of the shape of the surface)

10. The method of claim 9, wherein the geometric shape of the surface is rectangular, and wherein said arranging the ordered sequence of digits comprises arranging the

ordered sequence of digits as a rectangular array (see figure 4 and paragraph 52, for example).

11 . The method of claim 1, wherein the ordered sequence of digits has a characteristic such that a location in the ordered sequence of digits of each partial sequence of a predetermined length is unambiguously determined (the location of each cell 40, which is a predetermined length, can be unambiguously determined).

12. The method of claim 1, wherein one or more computer-readable media have computer-executable instructions for performing the method recited in claim 1 (see paragraph 30).

13. A method (see paragraphs 1, 2, 13, 33, 34, 78-82 and 87-89) of decoding a pattern (coding pattern 4) of symbols (dots) on a surface (base 1) to determine data (position information, for example) corresponding to the pattern, the pattern being divided into a plurality of windows (cells 40) on the surface, said method comprising:

detecting the symbols on the surface to determine their pattern (step 100, figure 10);

determining window boundaries (boundaries of the cells 40, for example) for the determined pattern, said window boundaries defining at least one of the windows (cells 40), each defined window including at least one of the detected symbols (dots) associated therewith; and

determining (step 101, figure 10) a position of the detected symbol within the associated window, wherein the determined position of the detected symbol within the associated window indicates the data corresponding to the pattern (see figure 10 and paragraphs 88 and 89).

14. The method of claim 13, wherein the data corresponding to the pattern indicates a unique position on the surface so that the determined position of the detected symbol within the associated window indicates the unique position on the surface (the position of the dots within the cells 40 indicate the position of the cells 40 on the base 1).

15. The method of claim 13, wherein the pattern is being divided into a plurality of non-overlapping and equally sized windows (cells 40), and wherein the determined window boundaries define at least one of the non-overlapping and equally sized windows (see figure 4 and paragraph 53, 62 and 63).

16. The method of claim 13, wherein the determined position of the detected symbol within the associated window of at least two adjacent windows indicates the data corresponding to the pattern, and wherein said detecting the symbols on the surface comprises detecting symbols included in the two adjacent windows (the dots of adjacent cells 40 indicates data corresponding to the positional information pattern).

17. The method of claim 13, wherein said determining the window boundaries

comprises:

determining a length of each window (the length of each cell 40);

identifying a potential window boundary (see paragraphs 62, 63, 88 and 89), said potential window boundary located between two symbols on the surface, said two symbols located on the surface for at most the determined length apart from each other; and

establishing other window boundaries based on the identified potential window boundary (see paragraphs 62, 63, 88 and 89).

18. The method of claim 17, wherein said identifying the potential window boundary comprises incrementally identifying the potential window boundary across a first direction of the surface, and wherein said establishing the other window boundaries comprises incrementally establishing the other window boundaries across a second direction of the surface based on the identified potential window boundary (see paragraphs 53, 62, 63, 88 and 89).

19. The method of claim 13, further comprising determining a number series (X and Y coordinate values, for example, see paragraph 53) as a function of the determined position of the detected symbol within the associated window, said number series indicative of the data corresponding to the pattern.

20. The method of claim 13, further comprising rotating the detected symbols via a mask function to align the detected symbols with an axis of the surface, said mask function based on a continuous space on the surface (the cells 40 will be aligned, if necessary, based upon the detected position information).

21. The method of claim 13, wherein one or more computer-readable media have computer-executable instructions for performing the method recited in claim 13 (see paragraphs 33 and 34).

22. An article (base 1, figure 1 and paragraphs 1, 13 and 48) comprising a surface (a surface of the base 1) and a pattern (coding pattern 4) on the surface, said pattern having symbols (dots) on the surface, each symbol having a position on the surface based on an ordered sequence of digits representative of encoded data (position information) and divided into a plurality of windows (cells 40), each window including at least one of the symbols, wherein the position of the symbol within the window indicates the encoded data (the position of the dots within cells 40 indicate the position data for the particular cell 40).

23. The article of claim 22, wherein the encoded data is indicative of a unique position on the surface so that the position of the symbol within the window indicates the unique position on the surface (the position in formation encoded by the dots of each cell 40 represent the unique position of that cell on the base 1).

24. The article of claim 22, wherein the position of the symbol within the window of at least two adjacent windows indicates the encoded data (the position of the dots within adjacent cells 40 indicates positional information).

25 The article of claim 22, wherein the ordered sequence of digits is an ordered sequence of binary digits, said ordered sequence of binary digits having a characteristic such that a location in the ordered sequence of binary digits of each partial sequence of a predetermined length is unambiguously determined (the location of each cell 40, which is a predetermined length, can be unambiguously determined).

26. The article of claim 22, wherein the windows are defined by a plurality of window boundaries (cell boundaries), wherein each of the windows has a predetermined length (the length of the cells 40 is predetermined), wherein each of the window boundaries is located between two symbols (dots) on the surface, and wherein the two symbols are located on the surface for at most the predetermined length apart from each other (the dots are no more than the length of a cell apart from each other).

27. The adicle of claim 22, wherein the position of the symbol (dot) within the window indicates a series of digits (the position information for the particular cell 40), said series of digits indicative of a partial sequence of the ordered sequence of digits representative

of the encoded data (each cell 40 contains portion of the total position information for all of the cells 40).

28. A system (see paragraphs 1, 13, 31, 32 and 65) for encoding data (position in formation) in a pattern (coding pattern 4) of symbols (dots) on a surface (base 1), said system comprising:

a processor (71, figure 7 and paragraph 65) configured to execute computer-executable instructions to:

separate an ordered sequence of digits representative of the encoded data (position information) into a plurality of sequential windows (cells 40), wherein each of the sequential windows includes a partial sequence (the position information for the particular cell 40) of the ordered sequence of digits, and

transforming the partial sequence included in each sequential window into a series of digits (a series of digits representing the position information for a particular cell 40); and

means (within processor unit 70, figure 7 and paragraph 65) for arranging a symbol (dots) within a plurality of surface windows (cells 40) on the surface (base 1), wherein each surface window corresponds to one of the sequential windows, wherein a position of the symbol within each surface window is based on one of the transformed series of digits, and wherein the position of the symbol within the surface window is indicative of the encoded data (the position of the dots within the cells 40 is indicative of the encoded position information for the cells 40).

29. The system of claim 28, wherein the encoded data indicates a unique position on the surface so that the position of the symbol within each surface window indicates the unique position on the surface (the position in formation encoded by the dots of each cell 40 represent the unique position of that cell on the base 1).

30. The system of claim 28, wherein the ordered sequence of digits is an ordered sequence of binary digits, and wherein the computer-executable instructions to transform the partial sequence included in each sequential window comprise computer-executable instructions to:

represent the partial sequence included in each sequential window as a decimal digit (the position information for each cell 40 is necessarily represented as a decimal digit in the coding device, when the coding device is a digital electronic device, see paragraphs 35 and 36, for example),

apply a mathematical function (an algorithm, see paragraph 67) to the decimal digit,

convert the decimal digit that has been applied with the mathematical function into a binary representation (a binary representation is necessarily used when the coding device is a digital device), and

wherein the binary representation constitutes the series of digits.

35. A system (see paragraphs 1, 2, 13, 35-37 and 78-82) for decoding a pattern (coding pattern 4) of symbols (dots) on a surface (base 1) to determine data (position information) corresponding to the pattern, the pattern being divided into a plurality of windows (cells 40) on the surface, said system comprising:

a sensor (94, figure 9 and paragraph 80) to detect the symbols on the surface to determine their pattern;

a processor (processor unit 96, figure 9 and paragraph 82) configured to execute computer-executable instructions to:

determine window boundaries (boundaries of the cells 40) for the determined pattern, said window boundaries defining at least one of the windows, each defined window including at least one of the detected symbols associated therewith (each cell 40 includes at least one of the detected dots), and

identify a position of the detected symbol within the associated window to determine the data corresponding to the pattern (see paragraph 82).

36. The system of claim 35, wherein the data corresponding to the pattern indicates a unique position on the surface so that the identified position of the detected symbol within the associated window indicates the unique position on the surface (the position in formation encoded by the dots of each cell 40 represent the unique position of that cell on the base 1).

37. The system of claim 35, wherein said sensor is configured to detect symbols included in at least two adjacent windows (the position of the dots within adjacent cells 40 indicates positional information).

38. The system of claim 35, wherein said computer-executable instructions to determine the window boundaries comprise computer-executable instructions to:

determine a length of each window (a length of each cell 40);

identify a potential window boundary (a boundary of a cell 40), said potential window boundary located between two symbols (dots) on the surface, said two symbols located on the surface for at most the determined length apart from each other (the dots are no more than the length of a cell from each other); and

establish other window boundaries (the boundaries of the other cells 40) based on the identified potential window boundary (see paragraphs 62, 63, 88 and 89).

39. The system of claim 35, where the processor is configured to execute computer-executable instructions to determine the window boundaries for the determined pattern as a function of a trajectory of the sensor on the surface (see paragraphs 62, 63, 88 and 89).

40. The system of claim 35, wherein said computer-executable instructions to identify the position of the detected symbol comprise computer-executable instructions to determine a number series (coordinate location data, for example) as a function of the

identified position of the detected symbol (dots) within the associated window (cell 40), said number series representative of the data (position information) corresponding to the pattern.

Allowable Subject Matter

3. Claims 5-8 and 31-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record, taken alone or in combination, fails to teach or fairly suggest: (re claim 5) wherein said applying the mathematical function to the decimal digit comprises applying a predetermined number to a power of a value of the decimal digit; (re claim 31) wherein said computer-executable instructions to apply the mathematical function comprise computer-executable instructions to apply a predetermined number to a power of a value of the decimal digit; in combination with the other claimed limitations as set forth in the claims.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yoshihara (US 5,936,228), Chou (US 2005/0211783), Wiebe et al (US 2005/0189407), Lynggaard et al (US 6,966,495), Pettersson (US 6,929,183), Nahum et al (US 6,781,694), Murakami (US 6,234,392), Nishino (US 6,116,510),

Yoshida (US 5,410,620), Yoshida (US 5,408,543), Yoshida (US 5,128,526), Takahashi et al (US 6,959,866), Nagasaki et al (US 6,622,276) and Morohashi et al (US 6,043,899) all teach systems and methods for encoding and/or decoding data.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jared J. Fureman whose telephone number is (571) 272-2391. The examiner can normally be reached on 7:00 am - 4:30 PM M-T, and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on (571) 272-2398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jared J. Fureman
Primary Examiner
Art Unit 2876

January 8, 2006